



## Fair Isle Harbour Improvement Works

### Volume 3: Non-Technical Summary

On behalf of **Shetland Isle Council (SIC)**



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# 1 Introduction

## 1.1 Overview

1.1.1 Shetland Islands Council (SIC) ('the Applicant'), is applying for full planning permission and associated marine consents for the improvements to the existing ferry port ('the Proposed Development') at North Haven, Fair Isle to facilitate a new ferry (referred to as 'the Site'). The Site is located within the administrative boundary of the Shetland Islands Council and is shown in **Figure 1-1** and **Figure 1-2** shows the proposed works.

1.1.2 An Environmental Impact Assessment Report (EIAR) has been prepared to support the planning application. An EIAR is the report of an Environmental Impact Assessment (EIA) carried out as required by national law known as the "EIA Regulations". EIA is the process by which development proposals deemed likely to have significant environmental effects are appraised. This document is the Non-Technical Summary (NTS) of the EIAR and summarises the content and conclusions of the EIAR in non-technical terms.

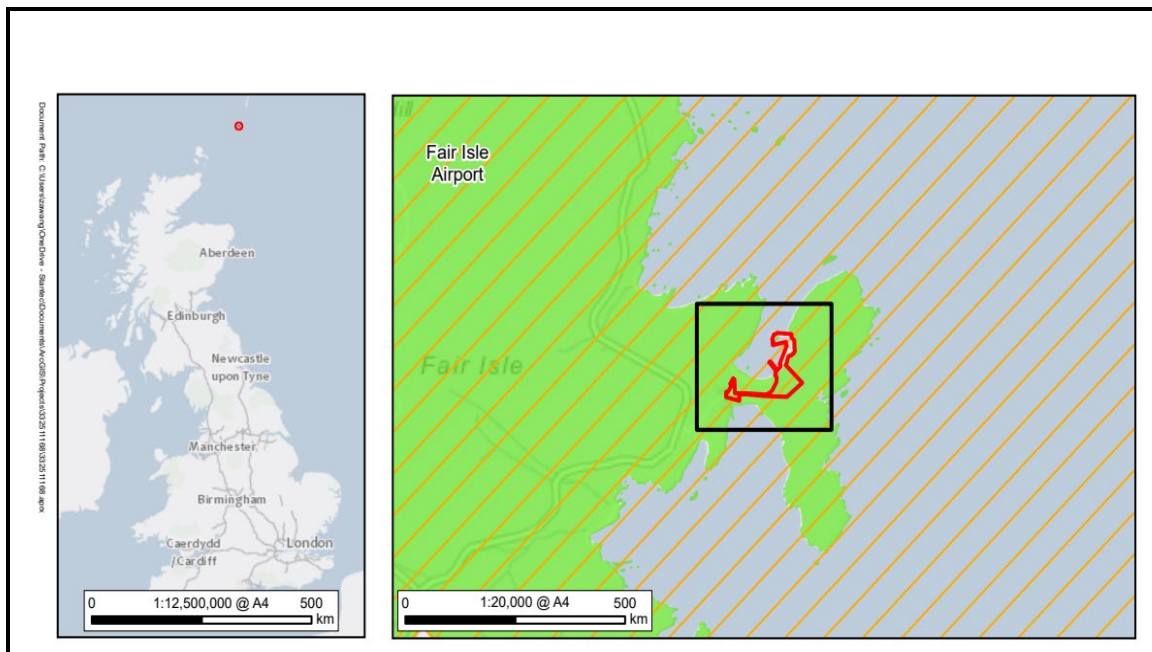


Figure 1-1 Site Location

Environmental Impact Assessment Report – Non-Technical Summary  
 Fair Isle Harbour Improvement Works

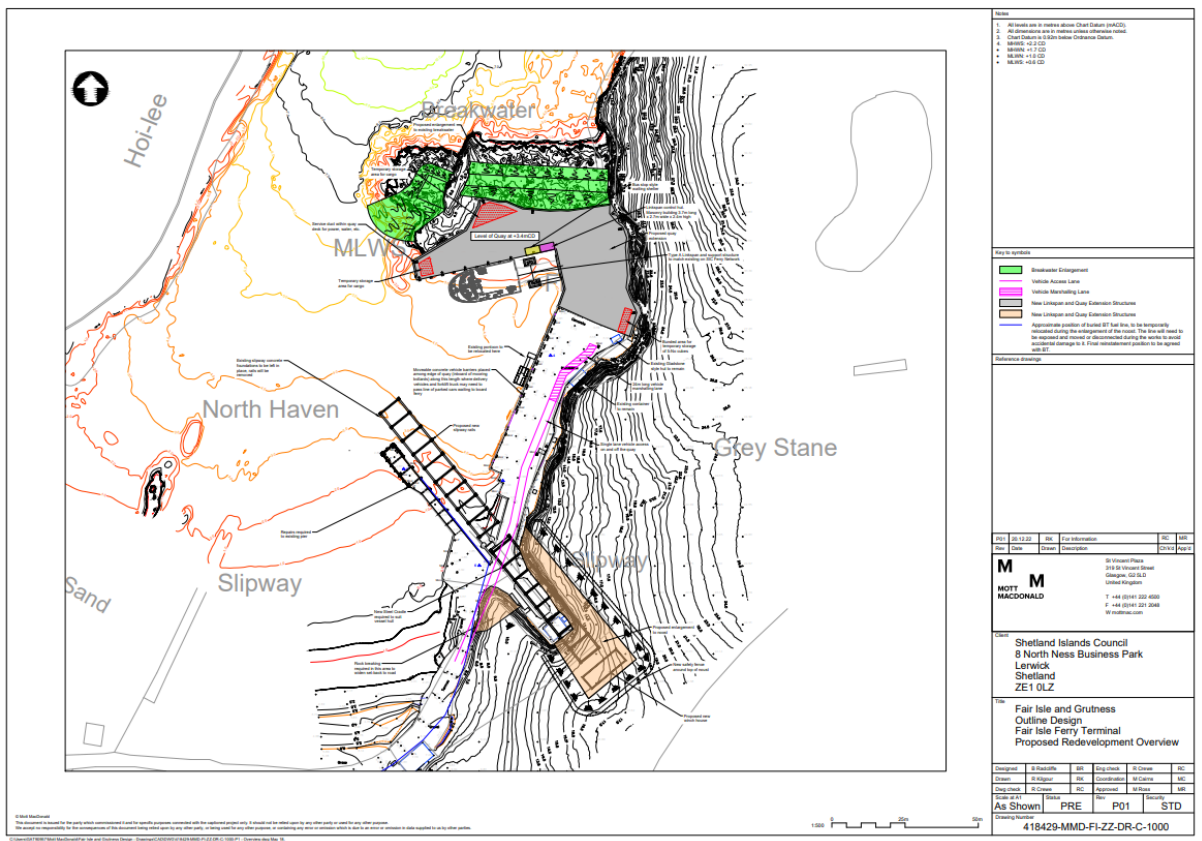


Figure 1-2

## 2 EIA Methodology

### 2.1 Overview

- 2.1.1 EIA is a procedure used to assess the likely significant effects of a proposed development on the environment. The results are written into an EIAR which is submitted with the planning application and marine license application. The EIAR provides the SIC and MS-LOT with sufficient information about the potential environmental effects of the development before a decision is made about the planning application. Effects may arise during the construction and operational phases of the development.
- 2.1.2 The EIAR predicts what the significance of each environmental effect would be, which is determined by two factors:
- The sensitivity, importance or value of the environment (such as ecological designations); and
  - The actual magnitude of change taking place to the environment (i.e. the size or severity of change taking place).
- 2.1.3 Most environmental disciplines classify effects as negligible, adverse or beneficial, where effects are minor, moderate or major. Some disciplines use bespoke criteria based on published guidance.
- 2.1.4 The EIAR also includes a description of the current environmental conditions known as the baseline conditions, against which the likely significant environmental effects of the development are assessed.

### 2.2 EIA Scope

- 2.2.1 An EIAR should focus on the likely significant effects of the Development on the environment during the construction and operational phases. A request for an EIA Scoping Opinion was submitted to SIC and MS-LOT on 12<sup>th</sup> April 2022. A Scoping Opinion was adopted by SIC on 27<sup>th</sup> June 2022 and MS-LOT on the 3<sup>rd</sup> August 2023. As a result of the Scoping process, the following subject areas have been included in the EIAR:
- Archaeology and Cultural Heritage;
  - Landscape / Seascape and Visual;
  - Marine Geomorphology;
  - Marine Ecology;
  - Terrestrial Ecology;
  - Climate Change; and
  - Socio-Economics.
- 2.2.2 A number of stand-alone assessment reports will accompany the planning application and are appended to the EIAR. These include:
- Historic Environment Desk Based Assessment (HEDBA); and
  - Report to Inform Appropriate Assessment (RIAA).

## 2.3 Stakeholder Engagement and Public Consultation

2.3.1 A key role in the EIA process is to ensure consultation has taken place with key parties. Consultation has been undertaken with the following organisations as part of the EIA process:

- Shetland Islands Council;
- Shetland Islands Council (Harbour);
- Transport Scotland;
- Marine Scotland;
- Historic Environment Scotland;
- Marine Analytical Unit;
- Maritime and Coastguard Agency;
- NatureScot;
- Northern Lighthouse Board;
- Royal Society for the Protection of Birds (RSPB);
- Royal Yachting Association;
- Scottish Environmental Protection Agency (SEPA);
- Scottish Water; and
- United Kingdom Chamber of Shipping.

2.3.2 Public consultation also took place on the island on 5<sup>th</sup> – 6<sup>th</sup> December 2022 and 6<sup>th</sup> – 7<sup>th</sup> February 2023.

## 2.4 Cumulative Effects

2.4.1 An EIA must assess the potentially significant effects of a development that may arise cumulatively (when combined with) other major development with planning permission or under construction in the local area. The EIA Regulations state that ‘existing and/or approved’ developments should be considered.

2.4.2 A review was undertaken to identify major developments within 2.5km of the edge of the planning application boundary of the Site that may lead to likely significant cumulative effects with the Proposed Development. However, due to the location of the island and the works at the harbour this will restrict any other major works happening on the island at the same time. The rebuilding of the Fair Isle Bird Observatory will be completed in 2023, there are no planned cumulative developments that are expected to happen on Fair Isle during construction.



## 3 Site and Development Description

### 3.1 Overview

- 3.1.1 The Site is located at the harbour at North Haven. Fair Isle is connected to mainland Shetland by two important transport links: an air service and the existing ferry service operated by the MV Good Shepherd IV. Although the air service is the main mode of transport for most residents, the ferry has an important role of fulfilling the supply-chain needs of the island. The ferry service is in desperate need of replacement as it is over 35-years old, can carry only 12 passengers per sailing, is relatively small and requires a crane to deliver supplies.

### 3.2 Site Location and Description

- 3.2.1 The Fair Isle ferry berth is located within the harbour at North Haven, on the north-east of the island. The existing pier is approximately 40m and is connected to hardstanding and a berth to the north. The harbour is sheltered by high rocky cliffs, an isthmus (narrow strip of land between North Haven and Bu Ness), and by a rock armoured breakwater. Despite this protection, northerly conditions cause significant wave motion at the berth and therefore a noust (Figure 3-1) is used to house the ferry overnight.



Figure 3-1 Existing Noust at Fair Isle

### 3.3 The Surrounding Area

- 3.3.1 Fair Isle is the most geographically remote island with a population in the United Kingdom. It lies 24 miles from the Shetland Mainland. There is a permanent population of around 60 people, who mostly live at the south end of the island. There are no dwellings present within the Site, the nearest is located 1.5km southwest. The Fair Isle Airport is located 1.15km west of the Site and it serves the island with flights to Tingwall Airport near Lerwick.

- 3.3.2 There are limited roads surrounding the Site, only the road leading to the Fair Isle Airport to the west and also one connecting the pier to the Fair Isle North Lighthouse.
- 3.3.3 There is one Category C Listed Building 150m west of the Site, which is a Shetland böd, a building used by fishermen, but it is not currently in use. 330m to the southwest of the Site is the Fair Isle Bird Observatory (FIBO) which is run by an independent charity, FIBO Trust. It burnt down in March 2019 but is due to re-open in Summer 2023.
- 3.3.4 In 2016, the seas around Fair Isle were appointed as a Marine Protected Area (MPA), which are used to monitor and research various marine species.

**MPA:** “A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (Joint Nature Conservation Committee, 2019<sup>1</sup>).

### 3.4 Environmental Context and Constraints

- 3.4.1 The environmental impacts that may occur as a result of the Proposed Development include: disturbance of sensitive or endangered species, impacts on the surrounding landscape, negative visual impacts and impacts on Fair Isle residents living close to the Site. Habitats present within the Site include vegetated sea cliffs, dry heath, marine and arable land.
- 3.4.2 The Site is located within environmental designations. These are parts of the environment which are protected under national legislation. Within the Site there are Special Protection Areas (SPAs), a Special Area of Conservation (SAC) (North Haven, Fair Isle) and Site of Special Scientific Interest (SSSI).



Figure 3-2 North Haven harbour

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<sup>1</sup> [About Marine Protected Areas | JNCC - Adviser to Government on Nature Conservation](#)

3.4.3 SIC intends to submit a full planning application and associated marine license applications seeking approval to enhance the existing port at Fair Isle. This includes:

- A new quay structure;
- A new linkspan (a type of drawbridge to move vehicles on and off a ferry) and associated control hut;
- Increase size and height of existing breakwater to provide greater shelter;
- Dredging;
- Repairs to existing pier;
- Increasing size of existing noust;
- Replacement of existing cradle and slipway; and
- New and extended lighting.

3.4.4 The Proposed Development will be designed to provide a reliable and lasting transport connected to Shetland. The introduction of a linkspan service would also improve the operational safety at both Fair Isle and Grutness. Improved journey times associated with the new ferry due to it being faster will provide the potential for an increase in the number of sailings.

### **3.5 Alternative and Design Evolution**

3.5.1 The EIA Regulations require an EIA to outline any alternatives that have been studied by the Developer and explain the choice made with a comparison of environmental effects.

#### **‘No Development’**

3.5.2 The no development alternative scenario means leaving the ferry and the Site as it is. The beneficial and negative effects outlined in the EIAR would not occur. As previously noted, the need for the Proposed Development is driven mainly by the need to improve the ferry port at North Haven and to introduce a new ferry. The current ferry is estimated to reach the end of its serviceable life by 2026 and must be replaced by a matter of growing urgency. The community of Fair Isle would face serious economic and social challenges under a ‘no development’ scenario. Therefore, a ‘no development’ scenario was not considered by the Applicant.

#### **Alternative Sites and Forms of Development Designs**

3.5.3 The nature of the Proposed Development is such that the aim is to redevelop the Site to allow the ferry port to continue to be used at North Haven, and as a result, no alternative sites have been considered. Different forms of development have been considered at North Haven, such as fixed ramps, alternative vessels however none provided the flexibility or met the needs of the islanders as much as the proposed plans.

#### **Conclusion**

3.5.4 The need for the Proposed Development is based on the social and economic needs of the remote community of Fair Isle as well as taking into account environmental conditions. These requirements have therefore limited and shaped the opportunities for other options, with the design instead being based on an iterative process to respond to the limitations and opportunities of the Site.

## 4 Construction Methodology and Phasing

### 4.1 Overview

- 4.1.1 The construction process is expected to take place over two summer seasons due to the weather restrictions during the winter months:
- North Haven Construction Phase 1 (Noust, winch house, slipway, cradle, access stairs, repairs to existing finger pier, fencing): February – September 2024 (8 months); and
  - North Haven Construction Phase 2 (Dredging, quayside, breakwater, linkspan, relocate pontoon, rock netting): March – September 2025 (7 months).
- 4.1.2 Key construction activities (not in chronological order) will include the following:
- Noust expansion, existing winch house demolition;
  - New slipway construction;
  - New winch house construction, winch installation and commissioning;
  - Pier structure repaired;
  - Breakwater extended and height increased;
  - Solid quay constructed to form new linkspan berth; and
  - Linkspan installed and commissioned.
- 4.1.3 Where possible, materials and resources used during the construction of the Proposed Development will be sourced from the local area.

### 4.2 Construction Machinery and Traffic

- 4.2.1 Although a detailed construction plan has not yet been created, it should be assumed that the construction of the Proposed Development will likely use excavators, dozers, cranes and dump trucks and possibly other small plant used during construction.
- 4.2.2 Although traffic will be generated during construction, it is not expected that the construction of the noust, quay and modification of the rock armour or the operation of the ferry will dramatically increase the level of traffic to, from or within Fair Isle.
- 4.2.3 The current Fair Isle ferry can accommodate two small vehicles in fair weather conditions and one vehicle in poor weather conditions, as a car is not allowed to be carried on the open-deck. As the ferry can only make three return crossings per week during the summer season and only one return crossing per week during the winter season (and sometimes fewer in poor weather conditions), vehicle traffic on the island is insignificant.
- 4.2.4 Due to the limitations of the current ferry, little to no material for the project will be shipped on the ferry. All materials are likely to be made at other ports and shipped to Fair Isle on purpose-built vessels. There is likely to be a small number of people working that will move backwards and forwards to accommodation on the island at the start and end of their shifts. Road traffic impacts associated with construction will therefore be insignificant.

4.2.5 During the work, construction works will likely travel home for long weekends on a Friday and return to Fair Isle on a Monday morning. This will increase the pressure on the number of seats on the aircraft. Due to this, there might be an opportunity to operate more non-scheduled flights, the air service is already very restricted and therefore the possibility for service expansion is greatly restricted. Similarly, there are potential significant issues related to any scaling-up of the ferry service.

### **4.3 Hours of Work**

4.3.1 Working hours on the Site will be agreed with SIC through the fiEMP. However, it is likely that the standard hours of work will be adhered to. These are:

- Monday to Friday, 07:00 to 19:00;
- Saturday, 07:00 to 13:00; and
- Sunday and Bank Holidays, no working.

4.3.2 Some activities may need to be carried out outside these hours which would be agreed with SIC / Marine Scotland.



## 5 Archaeology and Heritage

### 5.1 Introduction

- 5.1.1 The EIAR reported the likely significant effects of the Proposed Development on archaeology and heritage during both the construction and operational stages. The assessment considered the effects on built heritage (e.g. Listed Buildings), archaeological remains (e.g. Scheduled Monuments) and historic landscapes (e.g. World Heritage Sites).

### 5.2 Baseline Conditions

- 5.2.1 The baseline conditions of the Site and the surrounding landscape within 1km (study area) has been informed by a Historic Environmental Desk-Based Assessment (HEDBA) and a site visit in July 2022. There is one designated built heritage asset: a Category C Listed Building, a Shetland bød within the study area. The building is a rare survivor of traditional Shetland building practice. Several other non-designated built heritage assets were also identified within the study area which include the pier, which dates back to the 19<sup>th</sup> century, and a crane.
- 5.2.2 In terms of archaeological remains, four Scheduled Monuments were identified within the study area: a small hand-operated crane, Landberg fort (South Haven), Burn of Furse to Homis Dale (settlement and burnt mounds – part) and Burn of Gilsetter (burnt mound and mills – part). Additionally, there are several non-designated archaeological remains recorded within the vicinity of the Site. There may be more located within the Site, but these are not yet known. Within close proximity to the Site is a cist, a small stone-built coffin-like box used for burial purposes, and a WWII camp; the extent of the latter is unknown. Additionally, there are several non-designated shipwrecks located close to the harbour.

### 5.3 Construction Phase Effects

- 5.3.1 The construction of the Proposed Development will have a temporary impact on the Landberg Fort and bød due to visual changes but is not considered significant. Construction will have a permanent adverse impact upon the setting of the crane resulting from the works associated with the breakwater, noust, and alterations to the quayside.
- 5.3.2 Temporary construction works may also be visible from the position of the crane; however, this will have no more than a negligible impact. Overall, it is considered that there will be a moderate permanent adverse effect upon the heritage significance of the crane. The potential for major, permanent effects associated with the damage to and/or removal of archaeological remains will be offset by mitigative works appropriate to the scale of the Proposed Scheme and are therefore not significant. Overall, no significant residual effects are anticipated in relation to direct effects from the construction of the Proposed Development.

### 5.4 Operational Phase Effects

- 5.4.1 It is anticipated that there will be no operational impacts as mitigation measures will be taken to reduce impact on designated assets through development design.

### 5.5 Cumulative Effects

- 5.5.1 No cumulative effects are anticipated from the construction and operation of the Proposed Development. Any potential effects are considered to be low to negligible, and therefore not significant.

## 6 Terrestrial Biodiversity

### 6.1 Introduction

- 6.1.1 The EIAR reported the likely significant effects of the Development on terrestrial biodiversity.

### 6.2 Baseline Conditions

- 6.2.1 A desk study was undertaken using data in relation to notable habitats and species from Shetland Biological Records Centre (SBRC) and other online data sources. Additionally, ecological surveys were carried out on 12<sup>th</sup> – 13<sup>th</sup> July 2022. Only ecological features of local importance and above were used within the baseline assessment.
- 6.2.2 A number of ecological designations were identified, Fair Isle SAC (of international importance), Fair Isle SPA (of international importance), and Fair Isle SSSI (of national importance).
- 6.2.3 Vegetated sea cliffs of the Atlantic and Baltic Coasts were identified as an important terrestrial habitat within the Site (of local importance). The Fair Isle wren was identified as an important terrestrial species within the Site (of international importance). Notable plants were identified within the Site from records (of local importance): Small Adder’s Tongue, Frog Orchid, Oysterplant, Corn Spurrey, Allseed and Eelgrass.

### 6.3 Construction Phase Effects

- 6.3.1 The majority of potential effects are expected to occur during the construction phase; however, the majority will be temporary. Temporary potential impacts to the Fair Isle SAC are habitat loss and degradation mainly through the noust expansion, presence of a drilling rig and risk of pollutants. The expansion of the noust may cause damage/destruction to a Fair Isle wren nest within the Site, if present at that time. However, with the addition of secured mitigation measures, there would be no adverse effect to the Fair Isle SPA. The vegetated sea cliffs of the Atlantic and Baltic Coasts are subject to habitat loss and degradation; however, the area of overall notable habitat degraded would be small, which is not significant.
- 6.3.2 Additionally, for notable plant species, although temporary impacts could result in direct negative impacts, the area of overall habitat degraded would be small. As such, effects from habitat degradation to notable plants of local importance are considered not significant. Overall, with the implementation of mitigation measures such as a First Iteration Environmental Management Plan (fiEMP), a Biosecurity Management Plan and a Construction Bird Mitigation Plan the residual effects during construction will not be significant.

### 6.4 Operational Phase Effects

- 6.4.1 There is a potential risk of degradation and disturbance to all of the habitats and species within the baseline through pollution from operational activities (e.g. boat maintenance) or vehicle movements associated with harbour operations. However, these harbour operations are already happening and are not new potential impacts from the Proposed Development. As such, there will be no significant operational impacts or significant subsequent effects to any habitats or species.

### 6.5 Cumulative Effects

- 6.5.1 No significant adverse residual effects have been identified as a result of the Proposed Development, and there are no anticipated/foreseeable cumulative effects.

## 7 Climate Change

### 7.1 Introduction

- 7.1.1 The EIAR reported the likely significant effects of the Proposed Development on climate change ('Greenhouse Gas (GHG) Emissions Assessment'), and the likely significant effects of climate change on the Proposed Development ('Climate Change Resilience and Adaptation Assessment').

### 7.2 Baseline Conditions

#### ***GHG Emissions Assessment***

- 7.2.1 The majority of GHG emissions from the Site come from the operation of the existing ferry. Current GHG emission sources relate to the fuel burnt by the running of the existing ferry, as well as from the operation of the noust (which is either via electricity or a diesel generator as back up). There are also a small number of lights and welfare facilities on site that require electricity from either a generator or purchased electricity when in use. The vegetated sea cliffs across the Site may provide a limited amount of carbon sequestration on site. Overall, there are limited GHG emissions from the Site.

**Carbon Sequestration:** The capturing, removal and storage of carbon dioxide from the earth's atmosphere.

#### ***Climate Change Resilience and Adaptation***

- 7.2.2 It is expected that the Site may experience warmer, drier summers and milder, wetter winters, along with an increase in frequency and intensity of extreme weather events such as droughts or heatwaves as a result of climate change in the future.

### 7.3 Construction Phase Effects

#### ***GHG Emissions Assessment***

- 7.3.1 During construction, direct GHG emissions will be emitted from activities such as the combustion of fuels for vehicles, plant or equipment used for construction. There will also be emissions from generators or purchased electricity needed for plant and welfare facilities. Outsourced activities such as waste disposal as well as indirect emissions from the production of purchased materials and the transportation of these materials to site during construction will further contribute to GHG emissions. All potential effects were mitigated through embedded mitigation measures and are not significant.

#### ***Climate Change Resilience and Adaptation***

- 7.3.2 During construction, it is anticipated that the risk of climate hazards (e.g. heatwaves or periods of heavy rainfall) may increase, however it is expected that these will be managed through standard construction and health and safety practices, such as securing material / equipment and not undertaking works during periods of extreme rainfall. Due to extreme winter weather conditions on Fair Isle, construction will take place in the summer months (February to September) over two years (2024 to 2025). The vulnerability of the Proposed Development to climate change during construction has not been examined further.

## **7.4 Operational Phase Effects**

### ***GHG Emissions Assessment***

- 7.4.1 GHG emissions during operation are expected to be released by burning fossil fuels to run the ferry service and from any electricity required for lighting and the noust and winch house. These emissions are not anticipated to increase substantially from the existing levels of the current ferry service. The new larger ferry will likely increase GHG emissions although it is anticipated that it will be more energy efficient than the existing vessel. Therefore, no significant effects as result of GHG emissions during the operational phase are anticipated.

### ***Climate Change Resilience and Adaptation***

- 7.4.2 The projected changes to the climate may impact the future performance of the Proposed Development. As a result of the projected climatic changes, mitigation measures have been applied to the design process. Design standards have ensured that the elements are appropriately sized for the future wave climate. Also, concrete cover to steel reinforcement will be suitably large to achieve the 60-year design life of the structure in the aggressive marine environment.
- 7.4.3 Land stability issues will be addressed through a desk-based Ground Conditions Assessment and a detailed ground investigation. Finally, material brought up from the sea during construction is to be stockpiled on land nearby and used locally for shore protection as desired by the community. Overall, the likely effects of climate change on the Proposed Development were all mitigated and therefore the residual effects are not significant.

## **7.5 Cumulative Effects**

- 7.5.1 No significant adverse residual effects have been identified as a result of the Development, and there is no anticipated/foreseeable cumulative effect.

## 8 Socio-economics

### 8.1 Introduction

- 8.1.1 The EIAR reported the likely significant effects of the Proposed Development on socio-economics; particularly in relation to employment, population, health and well-being, economic development, living costs and tourism and recreation.

### 8.2 Baseline Conditions

- 8.2.1 Fair Isle has a permanent population of around 60 people who mostly live at the south end of the island. There are no dwellings present within the Site, the nearest is located approximately 1.5km southwest. Fair Isle has an older population than the Shetland Islands and Scotland with a higher proportion of people aged over 65 and a lower proportion of people aged under 64. In terms of housing, there is a greater proportion of detached and semi-detached homes in Fair Isle (95%) than in the Shetland Islands (58%) or Scotland (22%), and a lower proportion of semi-detached and terraced houses, and flats.
- 8.2.2 A lower proportion of Fair Isle's population are employed (67%) compared to the Shetland Islands (78%) and Scotland (69%). However, there is no unemployment on Fair Isle as those not employed are retired. The greatest proportion of jobs in Fair Isle are within Transport & Storage. Tourism is one of the most important economic drivers and in 2019, it was estimated that Fair Isle received a total of 1,787 visitors.
- 8.2.3 There is one primary school on Fair Isle for children aged 3-12, as of 2021 there were three pupils. Secondary school age children generally attend either Sandwick Junior High School or Anderson High School in Lerwick. Medical cover is provided by the Levenwick Health Centre and there is a resident district nurse who can provide assistance in the event of an emergency. Dental care is provided annually through a visit from Shetland NHS dental staff.

### 8.3 Construction Phase Effects

- 8.3.1 Construction of the Proposed Development will create 8-10 full time equivalent (FTE) construction jobs. Whilst the actual number of construction workers is expected to be fairly low in comparison to other development projects, the number represents a large proportional increase to the number of workers on Fair Isle. On this basis, there is likely to be a temporary, major beneficial effect on employment in Fair Isle during construction which is significant.

### 8.4 Operational Phase Effects

- 8.4.1 Operation of the Proposed Development will protect the jobs of the existing 7 permanent crew members who reside on Fair Isle and operate the ferry service. It is estimated that a further 4 FTE indirect jobs will be supported through supply chain linkages and a further 1 FTE job through induced effects. Therefore, employment will be protected for existing workers who represent 19% of Fair Isle's working age population. Overall, the Proposed Development will provide a long term, moderate beneficial effect on employment which is significant.
- 8.4.2 The Proposed Development will have a long-term minor beneficial effect on preventing population decline as it will increase the mobility of residents and make Fair Isle a more attractive place to live. This will improve people's quality of life and may also attract more residents to the island. Similarly, a long-term minor beneficial effect on health and well-being is expected as the new ferry will make the island more accessible for those with physical restrictions, this is particularly important as the Island has an ageing population. There will also be greater access to mainland health services for residents. Also, a long-term minor beneficial/negligible effect on living costs is expected as more goods will be transported to Fair Isle, potentially lowering prices.



- 8.4.3 A long-term moderate beneficial effect on economic development is expected as the Proposed Development will provide greater access to economic opportunities on the mainland and could allow growth in the economy of local businesses as potential customers will have greater access to goods and services available on the island. Additionally, a more reliable transportation system is likely to encourage more tourists to Fair Isle which is expected to have a long-term moderate beneficial effect on tourism and recreation.

## **8.5 Cumulative Effects**

- 8.5.1 There are no identified committed developments for which to provide a cumulative assessment.

## 9 Landscape, Seascape and Visual

### 9.1 Introduction

- 9.1.1 The EIAR reported the likely significant effects of the Proposed Development on landscape, seascape and visual amenity through a Landscape, Seascape and Visual Impact Assessment (LSVIA) during both the construction and operational stages.

### 9.2 Baseline Conditions

- 9.2.1 The baseline conditions of the Site and the surrounding landscape have been informed by desk-study and fieldwork. The Site is located within the Shetland National Scenic Area (NSA). The Scheme is covered by three Landscape Character Types (LCTs) and one Coastal Character Area (CCA).
- 9.2.2 The character of the Site is one of a typical small bay with associated harbour infrastructure such as a pier, quay, breakwater and boat launching equipment. There is a sandy beach which wraps around the southern edge of the bay. Land surrounding the bay is made up of grassland which is openly grazed by sheep. Within the Site itself, there is a lot of harbour infrastructure, including the existing noust, breakwater, finger pier, and quay which is used by recreational boats.

### 9.3 Construction Phase Effects

- 9.3.1 The LSVIA found that significant adverse landscape effects during construction would be limited to the landscape character of the Site and the character of the Small Harbour Coastal Character Type (CCT 11). This is broadly due to the proximity and nature of construction activity which would include changes to harbour infrastructure in addition to the dredging of navigational lanes and widening of the existing noust to accommodate the new vessel.
- 9.3.2 These effects would however be moderate, medium-term, and reversible/permanent and would not significantly alter the current conditions beyond construction given that the harbour would return current existing conditions. All other potential landscape effects were considered to be minor or negligible, including those associated with the Shetland NSA.
- 9.3.3 Visually, construction impacts could potentially have a significant affect people living in, working in or visiting the island and also people using the road network within the island. 9 view locations (VLs) were selected which are representative of views experienced by these users.

### 9.4 Operational Phase Effects

- 9.4.1 During consultation, it was agreed that the Proposed Development would not result in any significant landscape or visual effects during operation, the improved ferry service and upgraded features within the harbour will provide substantial benefits to visitors, workers, and residents across the island and therefore was not considered further.

### 9.5 Cumulative Effects

- 9.5.1 No significant adverse residual effects have been identified as a result of the Proposed Development, and there is no anticipated cumulative effect.

## 10 Marine Geomorphology

### 10.1 Introduction

10.1.1 The EIAR reported the likely significant effects of the Proposed Development during the construction and operational phase on marine geomorphology: coastal processes + geomorphology and marine water + sediment quality.

### 10.2 Baseline Conditions

- 10.2.1 Data collection has included a desk study, project-specific numerical modelling of hydrodynamics, waves, sediment transport and dredge plume and a benthic survey campaign including seabed grab sampling undertaken in 2022. Physical processes, namely waves, tides and sediment transport, constitute the primary effect 'pathways' assessed in this chapter. Assessment of these pathways is used by other EIA topics to feed into their studies. Marine water and sediment quality are identified as the main receptors in this chapter.
- 10.2.2 **Tides and water levels:** The bay at Fair Isle has a tidal range in excess of 4m with a mean spring tidal range of 1.6m and a mean neap tidal range of 0.7m.
- 10.2.3 **Surge:** The tide gauge analysis indicates that surges are primarily driven by a predicted high tide elevation alongside a moderate storm surge. However, the largest surge events in the tidal record tend to occur alongside smaller predicted tidal heights.
- 10.2.4 **Extreme water levels:** Extreme water levels are predicted to rise for a baseline year of 2017.
- 10.2.5 **Sea level rise:** The latest UK Climate Projection 18 research predicts that 0.96m will be added to current water levels by 2100.
- 10.2.6 **Flows:** Incoming tide and outgoing tide speeds, during a mean spring tide across the study area, show that the maximum currents in the bay are 0.02 to 0.03 meters per second (m/s) (small). Isolated locations around the existing structures in the bay show higher maximum current speeds of up to 0.05 to 0.08 m/s. The flow regime inside the bay is generally very low, with velocities typically 0.01 m/s.
- 10.2.7 **Waves:** The Fair Isle bay is exposed to waves approaching from a range of directions across the northern North Sea. The mouth of the bay is located such that long fetch lengths exist from north-north-easterly through to north-easterly directions.
- 10.2.8 **Geology and Sediments:** Local seabed and foreshore sediment cover across the Fair Isle bay is dominated by rock armour protection (of the existing breakwater), visible rocks and sandy sediment.
- 10.2.9 **Sediment quality:** No historic baseline sediment quality data exists for the area of the Proposed Development. It is highly likely that concentrations of sediment contaminants will be low, due to the coarse nature of the seabed material. Contamination through run-off is considered to be minimal. Potential contaminant sources are restricted to those from vessels.
- 10.2.10 **Water quality:** The Fair Isle coastal water body is currently at 'good' overall status with water quality assessed as 'good'. The Sumburgh Head to Kettle Ness coastal water body is currently at 'good' overall status with water quality assessed as 'good'. Within the area of the Proposed Development, it is expected that suspended sediment concentrations (SSC) are low due to the coarse nature of the seabed.

### **10.3 Construction Phase Effects**

- 10.3.1 Potential impact pathways from construction of the Proposed Development assessed in this chapter both at the Site and the proposed disposal site include changes to suspended sediment concentrations and sediment deposition, changes to local hydrodynamics and sediment transport pathways, as well as potential changes to dissolved oxygen concentrations, levels of chemical contaminants in water and redistribution of sediment-bound contaminants.
- 10.3.2 The mitigation hierarchy has been embedded within the assessment process, whereby the design has sought to avoid adverse impacts in the first instance through an iterative approach to design.
- 10.3.3 Changes to suspended sediment concentrations and sediment deposition, as well as changes to local hydrodynamics and sediment transport pathways are assessed as negligible and not significant. All of the potential impacts on water and sediment quality receptors are assessed as negligible or minor adverse and therefore are not significant.

### **10.4 Operational Phase Effects**

- 10.4.1 Potential impact pathways from operation of the Proposed Development assessment in the chapter in relation to changes to suspended sediment concentrations and sediment deposition, as well as changes to local hydrodynamics and sediment transport pathways are assessed as negligible and not significant. All of the potential impacts on water and sediment quality receptors are assessed as negligible or minor adverse and therefore are not significant.

### **10.5 Cumulative Effects**

- 10.5.1 There are no identified committed developments for which to provide a cumulative assessment.

## 11 Marine Ecology

### 11.1 Introduction

11.1.1 The EIAR reported the assessment findings of the construction and operation of the Proposed Development on marine ecology receptors, specifically benthic habitats and species, fish and shellfish, marine mammals, seabirds and coastal waterbirds.

### 11.2 Baseline Conditions

11.2.1 Data collection has included a desk study and a benthic survey programme carried out in 2022. The assessments, as relevant, have drawn upon the results of the marine geomorphology assessment.

11.2.2 **Designated Sites:** All of Fair Isle and the surrounding waters is a designated SPA for multiple features, one example is Fair Isle wren. The SPA overlaps the Fair Isle SSSI notes for plant fossils, moorland juniper and colonies of breeding seabirds. Fair Isle is also a designated Demonstration and Research (DR) Marine Protection Area (MPA) due to declining seabird and inshore fish populations.

11.2.3 **Benthic Habitats and Species:** Benthic ecology surveys were undertaken in July 2022. The main findings:

- Intertidal habitats: bladder wrack, serrated wrack and a variety of seaweed.
- Subtidal habitats: muddy sand, rocky kelp outcrops and seaweed.
- No Invasive Non-Native Species (INNS) were identified within the intertidal or subtidal areas at North Haven during the benthic surveys.

11.2.4 **Fish and Shellfish:** Priority Marine Features (PMFs): cod, sandeel, whiting, lemon sole, herring, sprat, norway pout, mackerel, blue whiting, ling, anglerfish, spurdog, spotted ray and European hake. Other species present in the waters include basking shark and European eel.

<b>PMFs:</b> Priority habitats and species for conservation is Scotland's seas.
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11.2.5 **Marine Mammals:** Minke Whale, Harbour Porpoise, Risso's Dolphin, Grey Seal, Harbour Seal, Orca, White-Beaked Dolphin, Atlantic White-Sided Dolphin, Humpback Whale, Long-Finned Pilot Whale and Bottlenose Dolphin.

11.2.6 **Seabirds and Coastal Waterbirds:** Fulmar, Arctic Tern, Puffin, Guillemot, Black Buillemot, Razorbill, Kittiwake, Ringed Plover and Oystercatcher.

### 11.3 Construction Phase Effects

11.3.1 Potential impact pathways from construction of the Proposed Development assessed in this chapter both at the Site and the disposal site include habitat loss and changes to benthic habitats and species, indirect effects from changes in water and sediment quality, introduction and spread of invasive non-native species and mammalian predators, underwater and airborne noise and vibration disturbance and changes to value of bird foraging habitat.

11.3.2 The mitigation hierarchy has been embedded within the assessment process, whereby the design has sought to avoid adverse impacts in the first instance through an iterative approach to design.



11.3.3 All of the potential impacts on marine ecology receptors are assessed as negligible or minor adverse and therefore are not significant.

## 11.4 Operational Phase Effects

### 11.4.1 Benthic Habitats and Species:

- Direct loss of benthic habitat (**not significant**);
- Changes to benthic habitats and species due to maintenance dredging (**not significant**); and
- Indirect changes to benthic habitat as a result of changes to wave reflection (**not significant**).

### 11.4.2 Seabirds and Coastal Waterbirds:

- Changes to the value of habitat for foraging (**not significant**);
- Disturbance of Fulmars nesting on stack (**not significant**); and
- The introduction of mammalian predators (**not significant**).

## 11.5 Cumulative Effects

11.5.1 There are no identified committed developments for which to provide a cumulative assessment.

## 12 Other Considerations

### 12.1 Introduction

- 12.1.1 The EIAR presents a description of potentially major accidents and disasters and considers the users of the harbour and how they will be managed during construction to ensure that there will be no significant effects arising.

### 12.2 Risk of Major Accidents and Disaster

- 12.2.1 **Scope of the Assessment:** The information within the EIAR is intended to demonstrate that the risk of major accidents and disasters (MA&D) will be managed and reduced through the application of embedded environmental measures and other statutory controls to ensure that there are no significant effects as a result of the Proposed Development.
- 12.2.2 The receptors considered which can be affected by MA&D are: population and human health, designated areas, scarce habitats, particular species, marine environment, groundwater source, built environment, and soil or sediment.
- 12.2.3 **Major Accident Criteria:** The major accident criteria drawn from standard industry practice endorsed by the HSE is applied to the receptor type and major accident / disaster. Any levels of harm which does not meet this threshold is discounted as a MA&D.
- 12.2.4 **Key Receptors and Activities:** The key receptors at North Haven are considered to be: construction workers, visitors and users of North Haven Harbor during the construction period, the marine environment, and designated land.

The main activities undertaken during construction that are highest risk to the receptors include: Marine/vessel-based activities, enlarging the noust, placing the rock armour on the breakwater and large precast sections of quay wall, dredging and preparing the seabed to receive the new quay wall, and demolition of the winch house.

- 12.2.5 **Embedded Environmental Mitigation Measures:** A number of embedded mitigation measures form part of the Proposed Development and/or are included within the fiEMP.
- 12.2.6 **Further Mitigation and Enhancement:** Further mitigation measures have been set out in the second iteration Environmental Management Plan (siEMP). The SiEMP will include a comprehensive package of pollution prevention measures to avoid accidental pollution events during construction.

### 12.3 Users of North Haven Harbour

- 12.3.1 **Baseline Conditions:** North Haven harbour is operated and managed by Shetland Island Council. The Shetland Island Council as the Harbour Authority operate to the standard required Port Marine Safety Code (PMSC) and in accordance with Guide to Good Practice for Port Marine Operations. North Haven harbour is used for ferry operations, stopover for recreational and commercial vessels, and Cruise ships that visit the island. These operations peak during the summer months.

### 12.4 Assessment of Likely Effects

- 12.4.1 Potential increase in hazards to navigation has been considered for the construction and operational phase.
- 12.4.2 **Construction Phase:** Ferry operations will continue during the construction phase; it is key to ensure that there is de-confliction between ferry and other users at North Haven and the vessels involved in the construction activities.

De-confliction may need to be considered if the barge is working on the breakwater and dredging vessel simultaneously, and if rock armouring activity and construction of the new Quay coincide. Information relating to other users will be updated regularly through Notice to Mariners to allow those interested in using North Haven to understanding availability of berths and maintain segregation from construction works.

- 12.4.3 **Operational Phase:** It is considered that neither improvement to the harbour and introduction of a larger vessel or the changes to the harbour layout would significantly affect the navigation of other vessels using the area.

## 12.5 Cumulative Effects

- 12.5.1 No cumulative effects are anticipated from the construction and operation of the Proposed Development. Any potential effects are considered to be low to negligible, and therefore not significant.

## 13 Summary and Residual Effects

### 13.1 Introduction

- 13.1.1 The EIA Report has been prepared to support a planning application which seeks full planning permission for the Proposed Development, as described in **Section 1.1** of this NTS.
- 13.1.2 The Proposed Development has been subject to an iterative design process and embedded mitigation measures to ensure that residual impacts are minimised and the design ‘fits’ the habitat that is on Fair Isle. As this process progressed, measures have been incorporated into the development parameters, detailed design and mitigation measures will be applied during construction in order to avoid, reduce or offset significant environmental effects.

### 13.2 Cumulative Effects

- 13.2.1 As stated in **Section 2.4** there are no identified committed developments for which to provide a cumulative assessment.
- 13.2.2 The only project in the area is the proposal to rebuild the bird observatory which is planned to take place during summer and autumn 2023. It would, therefore, not overlap with the proposal construction activities for the ferry replacement and upgrade which would not begin until the end of February 2024. Furthermore, operation of the observatory and ferry upgrade would not vary significantly from current operations.

### 13.3 Residual Effects

- 13.3.1 Residual effects are those that are predicted to remain following implementation of further mitigation and enhancement measures. No significant adverse residual effects have been identified as a result of the Proposed Development.